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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,629	10/28/2003	Konrad Gluschke	22704	6408

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EXAMINER

PALABRICA, RICARDO J

ART UNIT PAPER NUMBER

3641

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/695,629

Applicant(s)

GLUSCHKE ET AL.

Examiner

Rick Palabrica

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's 3/7/05 Amendment, which directly amended claims 1, 7, 9, and 11, is acknowledged. This amendment is in response to the 12/6/04 Office Action.

Claims 7, 9, 10 and 11 were objected to in the previous Office Action as being dependent upon a rejected claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, upon further consideration of the amended claims, newly found prior art reference render these claims unpatentable, as explained below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniuchi et al. (U.S. 5,641,970) in view of Kestemont (U.S. 3,438, 430). Taniuchi et al. disclose the Applicant's claims except for the metal tubes.

Taniuchi et al. teaches a transportation cask for radioactive material (see Figs. 1-5). Applicant's claim language reads on their cask as follows: a) "inner side wall" reads on inner shell 1 (see also col. 3, line 41); b) "outer side wall" reads on cylindrical vessel body 9 (see also col. 4, lines 12+); c) "cover at the upper end" reads on outer lid 13 (see also col. 4, line 19); d) "floor at the lower end" reads on outer bottom 11 (see also col. 4,

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line 17+). Taniuchi et al. use L-shaped metallic members 2 in the annular space between inner shell 1 and outer shell 5, to transfer heat from the inner shell to the outer shell (see col. 3, lines 60+).

Kestemont teaches a double-walled heat exchanger to transfer heat from a hot medium 1 (e.g., heat from a fuel element) between inner wall 3 and outer wall 4 (see Figs. 1-6 and col. 2, lines 23+). Heat transmission is by means of resiliently flexible plates 6 that is a good conductor of heat. He teaches that although all the figures except the last one show a V-shaped cross section for heat conduction means 6, to make the drawing easier, other forms and cross sections can be used. They give the following examples of other possible embodiments for the heat conduction element: triangular, circular, trapezoidal, X-shaped or M-shaped. (Examiner's note: By citing these other embodiments as examples, Kestemont does not limit his element 6 to only these shapes and an L-shaped element, as in Taniuchi et al., is not precluded).

Kastemont further teaches that his heat conducting elements is advantageous because by virtue of their elasticity and the fact that they are not welded or attached to the walls, any differential deformations of the walls can be effected freely without causing mechanical stresses.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Taniuchi et al., by the teaching of Kestemont, to replace the L-shaped heat conducting member with a metal tube of trapezoidal cross section and wedged between the inner and outer walls, to gain the advantages thereof (i.e., allow stress-free differential deformations of

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inner and outer walls), because such modification is no more than the use of well-known expedients within the nuclear art, and the substitution of one form of the heat conducting member by another well-known form.

Applicant's claim language, "plurality of axially extending, axially open and radially closed, and angularly spaced heat-conducting metal tubes" reads on the plurality of alternate heat-conduction tubes (i.e., every other tube) in the Taniuchi et al.-Kestemont combination.

Applicant's claim language, "axially extending and angularly spaced spacer strips fixed to the outer surface of the inner wall between the tubes" reads on the tubes sandwiched between any two, alternate heat conducting tubes in the Taniuchi et al.-Kestemont combination.

As to the limitation, "filler mass substantially filling the outer space between the tubes", this reads on the combination of neutron shielding layer 4 and gamma ray shielding 3 in the "sandwiched tube" in the resulting combination of Taniuchi et al. and Kestemont. (Examiner's note: Applicant alleges in his Amendment that Claim 1 has been amended to distinguish over the previous prior art by the recitation of a concrete filling between the inner and outer side walls. The Examiner disagrees because no such filling is recited in the amended claim. The claim only recites a generic term, "filler mass").

As to claims 2 and 6, the trapezoidal heat conducting member of the Taniuchi et al. and Kestemont combination has the elastic deformation and the complementary

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curvature to the respective inner and outer side walls of the cask (see for example col. 1, lines 62+ and col., lines 32+ in Kestemont).

3. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gluscke et al. (U.S. 6,389,093 B1) in view of the combination of Kestemont and JP 5-264793. Gluscke et al. ('093) disclose the Applicant's claims except for the metal tubes and epoxy coating.

Gluscke et al. ('093) teach a storage container for spent nuclear fuel elements (see Figs. 1-5). The container comprises an inner sidewall 5, and outer sidewall 6, and the space 7 between the two walls is filled with heavy concrete (see col. 6, lines 14+). The inner sidewall is connected to the outer sidewall by heat dissipating sheet metal elements 8, along with attachments 9, 10, and tabs 13.

As stated in section 2, Kestemont teaches heat conducting elements of trapezoidal cross section that is advantageous because by virtue of their elasticity and the fact that they are not welded or attached to the walls.

JP 5-264794 teaches the use of an epoxy coating on the inner surface of a steel drum of a container for radioactive wastes to make the container water-resistant. (Examiner's note: Applicant himself admits that epoxy is a release agent. Although JP 5-264794 uses epoxy for its water resistance property, it also inherently acts as a release agent, and it cannot be prevented from acting as such agent because it has the requisite attribute to act as one).

One having ordinary skill in the art would have recognized that all three references are in the same field of endeavor, i.e., radioactive material containment. It would have been also obvious to such artisan at the time the invention was made to modify the apparatus, as disclosed by Gluschke et al. ('093), by the teaching of Kastemont and JP 5-264794, to substitute a trapezoidal metal tube as heat dissipating element in place of the sheet metal element 8, its attachment and tab, to gain the advantages thereof (i.e., allow stress-free deformation of inner and outer walls) and to coat the inner and outer surfaces with epoxy to gain the advantages thereof (i.e., good resistance to water penetration), because such modification is no more than the use of well-known expedients in the nuclear art.

Using an epoxy coating not only for the inner surface (as taught by JP 5-264794) but for the outer surface, as well, would be obvious because it will further enhance water penetration resistance of the container, and ensure prevention of leach out of radionuclides from the radioactive material within the container.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Gluschke al. (U.S. 6,498,826 B2) in view of Kestemont. Gluschke al. ('826) discloses the Applicant's claim except for the metal tubes.

Gluschke et al. ('826) teach a storage container for spent nuclear fuel elements comprising an inner shell 5, an outer shell 6, and L-shaped metal strips to conduct heat away from the floor of the inner shell (see Figs. 1-4). They use a heat-conducting meandering metal strips 8, 12 in the annular space between the inner and outer shells.

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The meandering strip may be fixed to the inner shell (see col. 2, lines 27+). (Examiner's note: Claim language "may be fixed" admit to two possibilities, i.e., may or may not be fixed). These meandering strips may be disposed one above the other (see col. 3, lines 16+). There is concrete between the inner and outer walls (see col. 4, lines 13+).

As stated in section 2, Kastemont teaches heat conducting elements of trapezoidal cross section that is advantageous because by virtue of their elasticity and the fact that they are not welded or attached to the walls.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Gluschke et al. ('826), by the teaching of Kestemont, to replace the stacked, meandering heat conducting member with metal tubes of trapezoidal cross section and wedged between the inner and outer walls, along their entire lengths, to gain the advantages thereof (i.e., allow stress-free differential deformations of inner and outer walls and maximum heat dissipation property), because such modification is no more than the use of well-known expedients within the nuclear art, and the substitution of one form of the heat conducting member by another well-known form.

(Examiner's note: With the trapezoidal tubes covering the entire length of inner and outer walls, it is obvious that an L-shaped connector strip has to be connected to the wall of a tube).

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Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:30-5:00, Mon-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Carone can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP
May 2, 2005

RPalabrica